Clean Air Act 112(r) Risk Management Program (RMP) EPCRA

CHEMICAL EMERGENCY PREVENTION & PLANNING Newsletter

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CHEMICAL EMERGENCY PREVENTION & PLANNING *Newsletter*
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2005 TRI Public Data Released

The Environmental Protection Agency (EPA) recently released the 2005 Toxics Release Inventory (TRI) Data. The TRI is a publicly available EPA database (go to: www.epa.gov/tri) that contains detailed information on nearly 650 chemicals and chemical categories that almost 23,500 industrial and other facilities manage through disposal or other releases, recycling, energy recovery or treatment (see figure below).

This circular diagram consists of 4 quadrants which describe the types of data collected for TRI chemicals. The upper left quadrant shows

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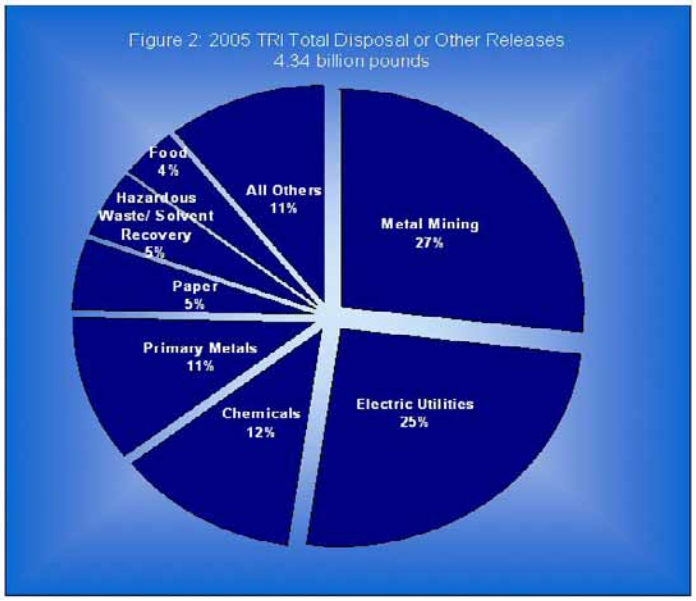
disposal or other releases that occur on site to surface water, air, land and underground injection. The upper right quadrant shows other waste management that occurs on-site. This waste management may include recycling, energy recovery and treatment.

The lower left quadrant shows the disposal or other releases for transfer to off-site facilities. These include off-site transfers to underground injection, land, and Publicly Owned Treatment Works – metals. The lower right quadrant shows other waste management for transfer to off-site. These include off-site waste management for recycling, energy recovery, treatment, and Publicly Owned Treatment Works – non-metals.

A total of 23,461 TRI facilities reported 4.34 billion pounds of on- and off-site disposal or other releases for RY 2005 (see Figure 2).



EPA has developed interactive, user-friendly software, *TRI-Made Easy* software, or *TRI-ME,* that guides reporters through the TRI reporting process with a series of questions that help determine if a facility needs to comply with the TRI reporting requirements. For facilities that determine they are required to report within Washington and Oregon, the software provides guidance for each data element on the reporting forms. Facilities can also take advantage of the electronic signature feature in *TRIME* that allows them to submit forms and certification statements via the Internet using EPA's Central Data Exchange (CDX). *TRIME* allows simultaneous report submittal to EPA and State. The software will be made available the end of May 2007 for Washington and Oregon facilities. To access the software, go to: http://www.epa.gov/tri .

Steps to Comply with TRI Reporting

Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) requires certain businesses to submit Toxic Release Inventory (TRI) reports each year on the amounts of EPCRA section 313 (or TRI) chemicals their facilities released into the environment (either routinely or as a result of accidents), or otherwise managed as waste. The owner or operator of a covered facility must report annually. The report must be sent to the U.S. EPA and designated state agencies **on or before July 1** and cover activities that occurred at the facility during the previous calendar year.

Complying with Section 313 is easy and inexpensive. The steps are as follows:

(1) Check the SIC code list (see Table 1, next page) to determine whether your facility is covered. (Beginning 2007, facilities are required to report NAICS codes in place of SIC Codes. View SIC-NAICS crosswalk tables at: http://www.census.gov/epcd/www/naics.html)

(2) Check that you have the equivalent of 10 or more fulltime employees (that is, if the total annual hours worked by all employees, including contract employees, is at least 20,000 hours).

(3) Check the list of TRI chemicals (available at weblink http://www.epa.gov/tri) to see if any are manufactured, imported, processed, or otherwise used by your facility.

(4) Determine whether you manufactured, processed, or otherwise used any TRI chemical in an amount greater than the following thresholds:

- **25,000 pounds** over the calendar year for any chemical, which is not listed as a Persistent Bioaccumulative Toxin (PBT), that is **manufactured or processed** at your facility. "*Processing"* is the incorporation of a toxic chemical into a product and includes making mixtures, repackaging, or using a chemical as a feedstock, raw material, or starting material for making another chemical.

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Table 1
STANDARD INDUSTRIAL CLASSIFICATION (SIC) SUBJECT TO SECTION 313

SIC	INDUSTRY GROUP
10 (except 1011, 1081, & 1094)	Metal Mining
12 (except 1241)	Coal Mining
20	Food
21	Tobacco
22	Textiles
23	Apparel
24	Lumber and Wood
25	Furniture
26	Paper
27	Printing and Publishing
28	Chemicals
29	Petroleum and Coal
30	Rubber and Plastics
31	Leather
32	Stone, Clay, and Glass
33	Primary Metals
34	Fabricated Metals
35	Machinery (excluding electrical)
36	Electrical and Electronic Equipment
37	Transportation Equipment
38	Instruments
39	Miscellaneous Manufacturing
4911	Electric Utilities (Electric Services) (limited to facilities that combust coal and/or oil for the purpose of generating electricity for distribution in commerce)
4931	Electric Utilities (Electric and Other Service Combined) (limited to facilities that combust coal and/or oil for the purpose of generating electricity for distribution in commerce)
4939	Electric Utilities (Combination Utilities, not Elsewhere Classified) (limited to facilities that combust coal and/or oil for the purpose of generating electricity for distribution in commerce)
4953	Commercial Hazardous WasteTreatment (limited to facilities regulated under the RCRA, Subtitle C, 421 U.S.C. section 6821 *et seq.*)
5169	Chemical and Allied Products Wholesale
5171	Petroleum Bulk Terminals and Plants
7389	Solvent Recovery Services (limited to facilities primarily engaged in solvent recovery services on a contract/fee basis)

- **10,000 pounds** over the calendar year for any chemical, which is not listed as a PBT chemical, that is **otherwise used** at your facility. "*Otherwise used"* applies to any use of a toxic chemical at a covered facility that is not covered by the terms "manufacture" or "process" and includes use of a toxic chemical contained in a mixture or trade name product.

- **PTB chemicals** are subject to separate and lower thresholds. For the reporting threshold of any PBT chemical that is manufactured, processed or otherwise used at your facility, refer to Table 2. These PBT chemicals are of particular concern because they are toxic and remain in the environment for long periods of time, are not readily destroyed, and build up or accumulate in body tissue.

(5) If you meet the criteria, you are required to report. You must complete a Form "R" or a Form A (alternate report to Form R) to EPA and state/tribal authority for each reportable chemical, or utilize EPA's automated TRI reporting forms and instructions. The reporting software can be downloaded from TRI website: http://www.epa.gov/tri/report.htm.

Table 2
TRI PBT CHEMICAL REPORTING THRESHOLD

CHEMICALS	THRESHOLD
Dioxin & dioxin-like compounds	0.1 grams
Benzo(g,h,i)perylene	10 pounds
Chlordane	10 pounds
Heptachlor	10 pounds
Hexachlorobenzene	10 pounds
Isodrin	10 pounds
Octachlorostyrene	10 pounds
Pentachlorobenzene	10 pounds
Polychlorinated biphenyl (PCBs)	10 pounds
Toxaphene	10 pounds
Mercury	10 pounds
Mercury compounds	10 pounds
Aldrin	100 pounds
Lead	100 pounds
Lead Compounds	100 pounds
Methoxychlor	100 pounds
Pendimethalin	100 pounds
Polycyclic aromatic compounds	100 pounds
Tetrabromobisphenol A	100 pounds
Trifluralin	100 pounds

(6) Develop the appropriate information to report your releases and other waste management activities. Don't wait until June 30 to start pulling it all together. You will need to track reportable materials from the time they enter your facility until the time they leave. You will have to know how much goes where in order to report your releases. Keep track of your source reduction and recycling activities, since there is a section on TRI Form to report these activities.

(7) You should designate someone at your facility to be responsible for TRI reporting.

What facilities are required to report

For each listed chemical "manufactured," "processed," or "otherwise used" in an amount exceeding the threshold level, a facility must

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report the following:

- Facility name, location, name and telephone number of a contact person.
- Identity of EPCRA 313 chemical/s (unless claimed as a trade secret).
- Types of activities (e.g. manufacture, process, or otherwise use) conducted at the facility involving the chemical.
- Maximum amount present on-site at the facility during the year.
- Amount released to the air, water, land, and injected underground.
- Amount recycled, burned for energy recovery, or treated at the facility and the methods used.
- Amount shipped from the facility to other locations for recycling, energy recovery, treatment, or disposal.
- Source reduction activities.
- Environmental permits held.

Issues in Understanding and Using TRI Data

The following are important issues and terms that are used in a specialized fashion within TRI documentation:

Release

The total amount of a TRI chemical that is released to the air, land, or water or injected into underground wells on-site at a TRI facility over a year, combining both amounts released due to normal procedures and amounts due to accidents. Any dumping to the land is considered to be a release, even if the TRI chemical is placed in a RCRA permitted landfill on-site. EPA, in its Public Data Release document, refers to off-site releases, by which is meant transfers off-site to disposal facilities.

Transfer

A transfer of a TRI chemical off-site in waste from a TRI facility to another destination. Transfers are divided into transfers to POTWS (publicly owned treatment works, or sewerage plants) and other off-site transfers. These other off-site transfers are further subdivided into those for the purpose of recycling, energy recovery (burning the chemical as fuel), treatment, or disposal. EPA treats transfers to disposal as "off-site releases". If a TRI chemical is sent off-site as part of a product, this is not reported within TRI.

Submission

Whenever a facility sends a TRI reporting form to EPA, this is called a "submission". Each submission contains information about a single chemical at one facility for a reporting year. (Note, however, that a facility can split up its reports by "establishment", or industrial unit, and that therefore there can be more than one submission for a single chemical from a facility in a year.)

Medium (or Environmental Medium)

The type of release. The environmental medium of a release can be fugitive air (an air release due to leaks, spills, and so on), stack air (an air release through smokestacks and other identifiable points), water, underground injection (pumping waste into a deep well), or land (with various subclassifications of land releases, such as landfills, land treatment, surface impoundments, etc.)

Waste Generated

The total amount of a TRI chemical that becomes waste over the course of a year. This is divided into production-related waste, which is generated in connection with the normal process of production, and non-production-related waste, such as that created by accidents, remedial actions (spill cleanups), and other one-time events. Production-related waste is reported as the sum of several types of "destinations" of the waste: amounts recycled on and off site, burned for energy recovery on and off site, treated on and off site, and released onsite or disposed of off-site.

Source Reduction

The Pollution Prevention Act sets out a hierarchy of methods which should be used to handle waste: preferably source reduction, then recycling, then treatment, then permitted disposal, and least preferably release. (Energy recovery was added to this hierarchy between recycling and treatment). Source reduction refers to the process of preventing waste from being generated. This is the best method of "handling" toxic waste since the waste is never generated in the first place. Progress in source reduction can be estimated by using the TRI production-related waste generation quantities, and comparing them from year to year. The production ratio or production index for each TRI form is intended to let you distinguish between changes in waste generation due to changes in production level and between changes due to source reduction.

(References: EPCRA; NJTAP Regulatory Pages)

How Are the TRI Data Used by Industry?

Although Congress intended the public to be the primary audience for TRI data, the TRI has also benefitted industries.

Cost Reduction

For some industries, the creation of the TRI marked the first time that company managers and operators looked closely at the quantity of chemicals being released from their facilities. Initially, some companies expressed surprise at their own toxic chemical release amounts and set goals to improve their environmental performance. Some companies have reduced their toxic chemical releases and increased their efficiency at the same time, leading to an increased profit.

Examples of ways that industry has used TRI data to reduce costs follow:

- At the EPA Toxics Release Inventory and Right-to-Know Conference examples were provided of how TRI information has helped companies develop waste reduction strategies. For example, Marathon Oil installed a thermal desorption unit to process oily waste and recovered over 120,000 barrels of oil. The Georgia Gulf Corporation relocated a methanol stripper purge line that resulted in the recovery of 9,300 gallons of methanol that previously underwent biological waste treatment.

- The Haartz Corporation, located in Acton, Massachusetts, makes coated fabrics used in automobiles. The firm once used 800,000 pounds per year of methyl ethyl ketone (MEK), a solvent that can cause dizziness, nausea, or unconsciousness when inhaled. When Haartz was preparing its first TRI report, the company installed a new emissions control system to capture and recycle MEK. TRI data enabled Haartz Corp. to track the association between reduced toxic chemical releases and reduced costs. According to the Haartz environmental manager, the company's "emissions have stayed pretty flat" despite its "double-digit sales growth". In addition, reducing its MEK releases saved Haartz an estimated $200,000 annually.

Public Relations Tools

Demonstrating environmental progress has become a selling point for industries, and many company websites now include an environmental report.

Examples of positive environmental marketing include:

- The Boeing Company posts TRI release data on its website and uses the information to track the company's environmental progress. The website noted that overall toxic chemical releases have decreased by more than 82 percent since 1991, and that "Boeing continues to invest and innovate in pollution prevention programs and find new ways to get greater leverage for current emission reduction programs."

- Monsanto's similar website provides both current and past TRI information on consolidated chemical releases and transfers from Monsanto facilities. The website also includes data about carbon dioxide releases, priority on-site toxic chemical releases, compliance penalties, chemical spills, Superfund sites, safety, and compliance.

Public Disclosure

Companies can use TRI data to "obtain an overview of the release and management of toxic chemicals, to identify release reduction targets, and to measure progress toward these goals. The publicity that has resulted from the availability of TRI data has prompted many facilities to pledge toxic chemical release reductions, and to work with communities to develop effective strategies for reducing environmental and human health risks. For example, the Iowa Association of Business and Industry organized a community-wide pollution prevention initiative in the Des Moines-Polk County area. The organization adopted a goal of a 70 percent reduction of all TRI chemicals.
(Reference: EPA)

FREE

RISK MANAGEMENT PROGRAM (RMP) Training

The Environmental Protection Agency is offering one-day training:
(Breakfast, lunch, break refreshments not provided)

JUNE 26 (Tues) 8:00 am–5:00 pm
JUNE 27 (Wed) 8:00 am–5:00 pm
JUNE 28 (Thurs) 8:00 am–5:00 pm

June 26 & 28 sessions will highlight Ammonia facilities

Location: Courtyard by Marriot, Richland, WA
(www.**Courtyard**.com)

Section 112(r) of the Clean Air Act mandates that facilities that hold, use, or generate toxic or flammable substances at or above thresholds determined by EPA develop **Risk Management Programs (RMPs)** to prevent accidental chemical releases. The primary goal of the RMP is to ensure that industries, community members and emergency responders have the proper tools to prevent catastrophic releases and reduce the severity of releases that do occur. Facilities which fail to comply with RMP reporting and implementation requirements can potentially be subject to substantial administrative, civil and/or criminal penalties.

This ***FREE* RMP training** will provide information about how to comply with the RMP reporting and emergency planning requirements. Major components of the RMP including common deficiencies will be discussed, and questions will be answered. The instructors are highly qualified EPA staff with decades of collective RMP inspection and enforcement experience.

This training is for …

- ***Safety, Process Safety, Operations and Plant Managers;***
- ***Environmental, Engineering and Maintenance Managers;***
- ***Safety Teams;***
- ***RMP and PSM Coordinators;***
- ***Supervisors, Operators and Maintenance Technicians; and***
- ***Technical, Safety and Environmental Professionals.***

Thank you for your commitment to accident prevention and emergency preparedness.

In order to guarantee a space, please register by phone or email by June 11. Contact
Roger Consolacion at 206-553-2585 or consolacion.rogelio@epa.gov

Additional information can be found on EPA region 10's RMP website: http://yosemite.epa.gov/r10/cleanup.nsf/sites/rmp

AGENDA

8:00 - 10:00 am	o RMP Overview o RMP Management o Hazard Assessment o Process Safety Information o Process Hazard Analysis/ Hazard Assessment o Operating Procedures
10:00 -10:15 am	BREAK
10:15 - 11:30 am	o Training o Mechanical Integrity o Management of Change and Pre-startup Safety Review
11:30 - 1:00 pm	LUNCH
1:00 –2:30 pm	o Video Presentation o Compliance Audits o Incident Investigations o Employee Participation
2:30 – 2:45 pm	BREAK
2:45 – 5:00 pm	o Emergency Response o Resubmital of RMP using RMP*Submit software and Corrections using RMP*RC o EPCRA

Texas City BP Refinery accident

The Price of Safety Complacency

The Texas City BP Refinery accident is discussed in the context of the need for vigilance in conducting infrequent, high-hazard operations. This article presents financial, regulatory, and legal impacts of the accident.

The Occupational Safety and Health Administration (OSHA) fined BP Products North America, Inc. (BP) $21,361,500 on September 22, 2005 following the agency's investigation of the March 23, 2005 explosion at BP's Texas City refinery. That explosion fatally injured 15 workers and significantly injured hundreds more. The fine against BP is the largest ever levied by OSHA. OSHA issued citations to BP for 303 willful safety violations, 26 serious safety violations, and 3 other-than-serious safety violations. OSHA's report cited BP's failure to:

- Use intrinsically safe electrical equipment;
- Record and compile written process safety information;
- Ensure employees receive refresher training at regular intervals;
- Correct deficiencies in equipment operating outside acceptable limits;
- Adequately identify and evaluate potential risks before facility operation;
- Adequately evaluate the safety and health impact of catastrophic events;
- Ensure that operators follow safe and consistent startup procedures; and
- Warn employees of developing conditions that could threaten safety.

OSHA classified several of the willful violations as "egregious," a term the agency only uses when violations occur in multiple instances across a range of activities. BP agreed to pay the multimillion-dollar fine as part of an agreement with the agency to improve safety conditions at the plant. OSHA, in conjunction with the Department of Labor, referred the Texas City refinery case to the Department of Justice. The managers and owners of BP now face not only monetary penalties, but also potential criminal penalties for poor safety oversight.

The fallout from the Texas City refinery explosion demonstrates the high cost of ignoring routine maintenance, process safety oversight, and opportunities for improvement at an aging facility. As a result of infrastructure downtime and repairs following the explosion, BP has lost an opportunity to invest approximately $1 billion of business capital into new programs and budget items. BP must instead deploy that capital to compensate for asset damage, facility downtime, lost product, and the administrative disruption that follows in the wake of a major catastrophe and a Federal accident investigation.

(DOE Safety Bulletin 2006-01)

BP Refinery Incident Description

At approximately 1:20 p.m. on Wednesday, March 23, 2005, a series of explosions occurred at the BP Texas City refinery during the restarting of a hydrocarbon isomerization unit. The accident was one of the most serious U.S. workplace disasters of the past two decades. Fifteen workers were killed and about 170 others were injured. Many of the victims were in or around work trailers located near an atmospheric vent stack. The Chemical Safety Board (CSB) investigators have reported that the explosions occurred when a distillation tower flooded with hydrocarbons and was overpressurized, causing a geyser-like release from the vent stack.

Photograph of initial explosion

Burnt vehicles and debris left by hydrocarbon vapor explosions that killed 15 workers at the BP Texas City refinery

Safety Alert

Dust Explosion Hazards

The picture on the left shows a monument to the anthracite coal miners of northeastern Pennsylvania, located in the town of Jim Thorpe (named after the famous Olympic athlete). It is a single rock of anthracite coal – over 7 tons of nearly pure carbon. The sign on the monument indicates that it has an energy content of 205 million BTU (216,000 million joules), equivalent to about 50 tons of TNT! So, should we be worried about this huge amount of energy located in the middle of a small town? Of course not, because it would be extremely difficult to ignite this large rock of coal, and, if ignited, it would burn very slowly.

But, what would happen if we ground up a few kilograms of that coal into a fine powder, as in the picture at the right, and suspended that powder in the air as a dust cloud in a building or other confined space? If we lit a match or provided some other ignition source such as an electric spark, the result might be a massive and damaging dust explosion. The picture below shows the results of such an explosion, which killed 6 people and injured 37.

Did you know?

- Most solid materials which will burn can form an explosive dust cloud if the particle size of the solid is small enough. Some examples of materials which can explode as a dust include wood, flour, sugar, grain, plastics, many solid organic chemicals, and many metals.
- Accumulations of dust on floors, tops of vessels or tanks, support beams, in cable trays, above suspended ceilings, can form an explosive cloud if somehow disturbed and lifted into the air.
- A dust layer 1/32 inch (less than 1 mm) thick on exposed surfaces can create an explosive dust cloud once suspended in air.
- A dust layer can be considered to create a hazardous condition if it covers an area, on all surfaces, greater than 5 % of the floor area of a room.

What can you do?

- Be aware of the potential for a dust explosion when you handle solid materials which can burn. Follow the specified safe operating procedures for handling powders and dusts in your plant.
- Do not allow dust to accumulate on floors, on top of equipment, on beams, or other places. Be aware of those "hard to see" areas such the top of tanks or above a suspended ceiling and check them for dust accumulation regularly. Watch all areas, even those corners and hidden spaces.
- Be particularly careful to prevent dust accumulation on hot surfaces such as light fixtures, electric motors, steam pipes, etc., where the heat may cause the dust to ignite.
- Be sure that any equipment used to clean up dust (for example, an electric vacuum cleaner) is appropriate for use in an atmosphere which could contain an explosive dust.

(Source: Process Safety Beacon)

Be aware of dust explosion hazards.

Safety Alert

Toxic Reaction Causes Fatality

Here's What Happened

Several construction employees working near a collection pit were overcome with hydrogen sulfide gas. The gas was released nearby when sodium hydrosulfide was accidentally mixed with sulfuric acid. Three workers collapsed almost immediately and three others tried to rescue them. Two of those rescuers also collapsed. In all, ten workers were exposed to the toxic gas. Two died and eight others were injured.


Site of toxic gas release at Naheola mill


Collection drain next to tank truck unloading station

How Did This Happen?

Fifteen trucks of sodium hydrosulfide (NaSH) had been delivered to the facility in the previous 24 hours. Each truck is believed to have spilled about 5 gallons (19 liters) in to the collection pit. Construction employees were working in the area and needed to enter the collection pit. Operations drained the pit into what was believed to be the wastewater system. Instead, the pit drained in to a sewer line where sulfuric acid was present in quantities sufficient to react with the NaSH. As soon as the two chemicals mixed, they reacted and toxic hydrogen sulfide gas was released. The toxic gas escaped from the sewer system through the seal of a fiberglass manhole cover near the workers.

What You Can Do

- ✓ Use disposal systems only for the chemicals they are designed to handle. Recognize that trenches, sewers, and other disposal systems contain a variety of chemicals which can generate toxic gas or cause heat to be liberated if non-compatible materials are mixed.
- ✓ Understand the expected reactions for accidentally mixing chemicals normally present at your site. Take special precautions for any reactions that produce toxic gas or liberate heat. If you have an interaction matrix, take time to understand it! Other hazardous gases that might easily be generated in a sewer include chlorine, sulfur dioxide, and carbon dioxide. Recognize that some toxic gases dull your sense of smell so you may have to react quickly.
- ✓ Some disposal systems are designed to be sealed. Promptly report any leaks and missing seals to supervision for maintenance.
- ✓ Know your role in an emergency. NEVER NEVER try to rescue someone if you do not have the proper life saving rescue equipment and training.

(Source: Process Safety Beacon)